



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,408	10/15/2003	James M. Lewis	LEW-005-CIP2	4419
21884	7590	06/05/2006	EXAMINER	
WELSH & FLAXMAN LLC 2000 DUKE STREET, SUITE 100 ALEXANDRIA, VA 22314			RUTLAND WALLIS, MICHAEL	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/684,408

Applicant(s)

LEWIS, JAMES M.

Examiner

Michael Rutland-Wallis

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 9-19 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-5 and 9-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- Paper No(s)/Mail Date 1/27/04 mwj

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Claims 6-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention. Election was made **without** traverse in the reply filed on April 20, 2006.

Response to Remarks

Applicant has filed a replacement drawing for figure 22 this replacement figure is hereby entered.

Applicant's amendments to the specification are hereby entered, further as applicant's amendment details applicant's instant application's status has been changed to a Continuation in Part of application no. 10/386,665

Drawings

A new corrected drawing in compliance with 37 CFR 1.121(d) are required in this application because figure 21 contains handwritten lines and elements and difficult to read. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Figure 26 contains two MOSFETs identified as Q2 based on a review of applicant's disclosure one of the MOSFETs should be changed to Q3.

It is believed figures 19 and 20 are color drawings, Therefore applicant is advised color drawings are not accepted unless a petition filed under 37 CFR 1.84(a)(2) is granted. Any such petition must be accompanied by the appropriate fee set forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and, unless already present, an amendment to include the following language as the first paragraph of the brief description of the drawings section of the specification:

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

Color photographs will be accepted if the conditions for accepting color drawings and black and white photographs have been satisfied. See 37 CFR 1.84(b)(2):

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Wong (U.S. Pat. No. 6,456,511) Wong discloses a MOSFET based, high voltage (Wong teaches a switching system with a primary side voltage of 370 volts this is considered

Art Unit: 2835

“high” by the examiner see column 5 line 31), high current AC electronic relay, comprising: a MOSFET (Fig. 2 item 75) switching circuit selectively switching between switch conducting and switch isolation; a transformer (Fig. 2 item T2) coupled to the MOSFET switching circuit, the transformer (Fig. 2 shows the transformer connected to the gate terminal of the transformer) selectively applying a predetermined voltage to the MOSFET switching circuit which establishes the MOSFET switching circuit in switch conducting.

With respect to claim 2 Wong teaches an oscillator (AC power source) connected to the transformer.

Claims 9, 13, 15 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Eddlemon (U.S. Pat. No. 6,496,068)

With respect to claim 9 Eddlemon teaches a MOSFET switching circuit (figure 3) for use in a power control system, comprising: a first power MOSFET (Q5 further see claim 17 where Eddlemon discloses the switches are power MOSFET transistors), a second power MOSFET (Q8) and a depletion mode MOSFET (item Q7 see column 1 lines 42-43).

With respect to claim 13 and 19 Eddlemon teaches further including at least one capacitor (C1) adding stability by altering charge producing significant voltage.

With respect to claim 15 Eddlemon teaches the circuit consists essentially of the first power MOSFET, a second power MOSFET and a depletion mode MOSFET.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong (U.S. Pat. No. 6,456,511) in view of Koroncai et al. (DE 44 29 285 C1)

With respect to claim 3 Wong teaches the device of claim 1 and while Wong's control is asserted through a single MOSFET Koroncai teaches a current control circuit which controls the a power MOSFET (item 1) through a depletion mode MOSFET (item 18) and second MOSFET (item 19). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wong to include the MOSFET control circuitry of Koroncai in order to control the current sent to a transformer arrangement.

With respect to claim 4 Koroncai teaches a depletion mode MOSFET is connected between the gate and source of the power MOSFETs.

With respect to claim 5 Koroncai teaches Koroncai teaches in figure 2 the use of several other MOSFETs such as item 12, 5 and 8 while not specifically referred to be small signal MOSFETs It would have been obvious to one of ordinary skill in the art at the time of the invention to use transistors such as item 5,8 and 12 to switch low power signals. Koroncai teaches the small signal depletion mode MOSET item 12 is connected between the source and gate of the first power MOSFET item 1 and it is not connected

Art Unit: 2835

between the gate and source terminal of the second power MOSFET, however Koroncai does teach the use of a resistor item 20 which is used to dissipate the charge across the gate terminals. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Koroncai to use a small signal MOSFET in the place of the resistor in order to dissipate the charge across the gate terminals.

Claims 9, 10, 12, 14-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koroncai et al. (DE 44 29 285 C1)

With respect to claims 9-10 and 16 Koroncai teaches a MOSFET switching circuit for use in a power control system, comprising: a first power MOSFET (item 1) a second power MOSFET (item 19) and a depletion mode MOSFET (item 18), Koroncai also teaches a depletion mode MOSFET is connected between the gate and source of the power MOSFETs. While item 19 is not disclosed to be a power MOSFET It would have been obvious to one of ordinary skill in the art at the time of the invention to use a MOSFET with a the ability to conduct high current such as a power MOSFET in order to send high current or voltage signals.

With respect to claim 12 and 18 Koroncai teaches a resistor is coupled to the depletion mode MOSFET for quickly dissipating charge on a gate of the depletion mode MOSFET.

With respect to claim 14 Koroncai teaches Koroncai teaches in figure 2 the use of several other MOSFETs such as item 12, 5 and 8 while not specifically referred to be small signal MOSFETs It would have been obvious to one of ordinary skill in the art at the time of the invention to use transistors such as item 5,8 and 12 to switch low power

Art Unit: 2835

signals. Koroncai teaches the small signal depletion mode MOSFET item 12 is connected between the source and gate of the first power MOSFET item 1 and it is not connected between the gate and source terminal of the second power MOSFET, however Koroncai does teach the use of a resistor item 20 which is used to dissipate the charge across the gate terminals. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Koroncai to use a small signal MOSFET in the place of the resistor in order to dissipate the charge across the gate terminals.

With respect to claim 15 Koroncai teaches the circuit consists essentially of a first power MOSFET, a second power MOSFET and a depletion mode MOSFET.

Claims 11, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koroncai et al. (DE 44 29 285 C1) in view of Wong (U.S. Pat. No. 6,456,511)

With respect to claim 11 and 17 Koroncai teaches the device of a claim 9 but does not teach a first resistor coupled to the first and second power MOSFETs, wherein the first resistor is sized to prohibit low resistance of the depletion mode MOSFET from saturating a transformer arrangement powering the switching circuit. Wong teaches a transformer arrangement and resistor item 78 which is sized to control the energy of the transformer. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a resistor in connection with a transformer to reduce the occurrence of saturation in the transformer and control or limit the energy of a transformer.

With respect to claim 19 Wong teaches the use of a capacitor (item 74) adding stability by altering charge.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Blanchard (U.S. Pat. No. 6,331,794), Igarashi et al. (U.S. Pat. No. 6,339,262) both teach MOFET switching circuits relevant to at least claim 9.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Rutland-Wallis whose telephone number is 571-272-5921. The examiner can normally be reached on Monday-Thursday 7:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MRW


LYNN FEILD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800